



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,728	09/12/2003	Wu Li	SMBZ 2 01007	8276
27885	7590	04/12/2006	EXAMINER	
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP			THOMPSON, CAMIE S	
1100 SUPERIOR AVENUE, SEVENTH FLOOR			ART UNIT	
CLEVELAND, OH 44114			PAPER NUMBER	

1774

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/661,728

Applicant(s)

LI ET AL.

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 2/3/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed February 3, 2006 have been acknowledged.
2. Examiner acknowledges amended claim 1.
3. The rejection of claims 1-28 under 35 U.S.C. 103(a) as being unpatentable over Yano et al., U.S. Patent Number 6,699,596 in view of Kim et al., U.S. Patent Number 6,509,689 is withdrawn due to applicant's argument.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al., U.S. Patent Number 6,699,596 in view of Kageyama et al., JP 63-299093.

Yano discloses a blue full color EL display comprising a phosphor thin film wherein the phosphor is a barium thioaluminate or magnesium barium thioaluminate with europium added as the activator (see column 2, lines 46-68). Column 3, lines 1-16 discloses that the atomic ratio of Mg to Ba may fall in the range between 0.05 and 0.8, $x=1-5$, $y=1$ to 15 $z=3-30$ and $w=3-30$. Also, the reference discloses that the phosphor thin layer can be a light emitting layer and first and second insulating layers (see Figure 2 and column 6, lines 42-53). Column 2, lines 64-68 of

the Yano reference discloses that oxygen may substitute for sulfur in barium thioaluminate to yield an oxysulfide. Also, example 1 of the Yano reference discloses that the magnesium barium thioaluminate film contains a substantial amount of oxygen. It is disclosed in column 6, lines 53-68 of the Yano reference that the substrate can be a glass or glass ceramic substrate. Yano also discloses that the phosphor thin film is annealed at 400 to 800 °C. Additionally, Yano discloses that the light emitting layer comprising the phosphor thin film of magnesium barium thioaluminate is preferably about 100 to 2,000 nm thick (see column 4, lines 58-64). Column 7, lines 11-43 of the Yano reference discloses that the first thick film insulating layer has a thickness of 5-50 μm and the second insulating layer has a thickness of 100 to 500 nm. Also, Yano discloses that materials that have high permittivity are preferred for the dielectric material. Electron beam sources are provided to serve as a means for depositing the dielectric layers in the Yano reference (see column 5, lines 33-65). The Yano reference does not disclose that the insulating layers are fluoride-containing layers directly adjacent to the blue phosphor thin film layer. The Japanese reference discloses an electroluminescent element that has little aging deterioration and long-term reliability by forming the side of an insulating layer in contact with a luminescent with a fluoride of an alkaline earth element, which is a constituting element of the luminescent layer (see abstract). The figure provided by the Japanese reference describes a transparent electrode, an insulating layer and luminescent layer formed on a substrate and the luminescent layer is formed of an alkaline earth chalcogenide. The use of a fluoride-containing material in the insulating layers affects the aging of the device. Therefore, it would have been obvious to one of ordinary skill in the art to have the insulating layers comprise barium fluoride

Art Unit: 1774

or magnesium fluoride in order to have an electroluminescent element that has excellent long-term stability and reliability.

Response to Arguments

6. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RENA DYE

SUPERVISORY PATENT EXAMINER

A.U. 1774 4/2/04